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# FOOD SERVICE IN PUERTO RICO'S SCHOOLS

Michael G. Van Dress

U.S. Department of Agriculture  
Economics, Statistics, and Cooperatives Service

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PREFACE

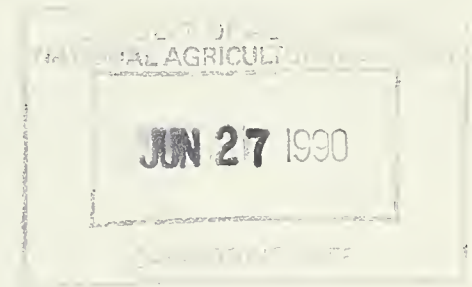
This report was developed by the U.S. Department of Agriculture's Economics, Statistics, and Cooperatives Service. Data were gathered and processed by Market Facts, Inc. under a contract with the Department's Food and Nutrition Service. The report evaluates facets of child nutrition and food assistance programs and, in part, assesses the markets for food which these programs bring about.

The study was designed to satisfy requirements for information needed by managers at various levels of government who are responsible for operating school food service systems and administering related programs. Such information also may be useful to firms that process and distribute food and provide related goods and services to schools that provide food service. It may help these firms better tailor their immediate and future food processing and marketing efforts to the requirements of this segment of the market for food consumed away from home.

Special appreciation is extended to the School Food Use Team of the Food and Nutrition Service who collectively and individually gave valuable assistance throughout all phases of the study, particularly J.C. Chai, Jackie Davis, Dorothy E. Meyers, and John Robinson.

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## SUMMARY

Nearly 77 million pounds of food products with a wholesale value of \$35.4 million were used by schools in Puerto Rico that provided food service to students under federally sponsored programs during the 1974-75 school year. About 7.5 million pounds of food, with a wholesale value of \$4.8 million, were received by Puerto Rico's school system under the U.S. Department of Agriculture's (USDA) Food Distribution Program. The remainder came from commercial suppliers and other sources.

Students in 1,540 public and private schools had access to meals under the USDA School Breakfast program. Meals also were available to students in all 2,612 elementary and secondary public schools and 86 of the 125 private schools under the National School Lunch Program. Breakfasts were served daily to an average of 94,641 students, and Type A lunches to 417,400 students. The participation rate in the lunch program averaged 66.4 percent of student attendance for the 177 days that food service was available during the school year.

All students in Puerto Rico, except those who were members of nonresident families, were eligible for meals at no charge. The luncheon charge to the 1,150 participating children of nonresident families was 55 cents.

During the 1974-75 school year, the cost of food used in a USDA school breakfast averaged 20 cents, and in a Type A lunch, 44 cents. These costs included the value of USDA-donated commodities. Vegetables (including potatoes and dry beans) accounted for 41 percent of the poundage and about 25 percent of the value of all food purchased and donated. Fruits (including plantain, a staple in Puerto Rico), with 11.6 million pounds, comprised the second most important group of products, and accounted for 15 cents out of every food dollar. Other important groups were dairy, meat, and cereal and grain products.

Availability of storage facilities may have had a significant impact on the forms of food that schools received. Only about one-third of the schools had refrigerator storage, and only 1 in 33 had freezer storage.

## FOOD SERVICE IN PUERTO RICO'S SCHOOLS

*Michael G. Van Dress*

### INTRODUCTION

The primary objective of the National School Lunch and Child Nutrition Acts is to safeguard the health and well-being of the Nation's children by providing them well-balanced, nutritious meals. The Food and Nutrition Service of the U.S. Department of Agriculture (USDA) has direct responsibility for carrying out the provisions of the acts.

All public and nonprofit private schools through high school are eligible to participate in the Child Nutrition Programs. Participating schools are required to serve nutritious meals on a nonprofit basis and at free or reduced prices to economically needy pupils who cannot afford to pay full price.

A study of food service operations in the Nation's schools was conducted in the continental United States and Puerto Rico during a 1-year period beginning September 1974. It was made to obtain information and operating statistics on school food service programs essential to effective program management at each operational level. This report provides findings from that facet of the study that deals with the school system in Puerto Rico. The primary objectives of the survey were to obtain measures of the quantity and value of food used in Puerto Rico's schools and information on other economic and physical characteristics of school food service programs needed by officials who administer them. Current food use and preference data are needed to provide guidance in the acquisition of food for schools under the Department's Food Distribution Program. Such data provide insight into the types and forms of food most acceptable and the facilities needed to store them. Food use data and program statistics also may be of use to such interested parties as the Congress, the food industry, and food service officials.

The data summarized here were obtained in personal interviews with representatives from the headquarters of the Commonwealth of Puerto Rico school system in San Juan, Puerto Rico. Quantities of all food products normally purchased in liquid form, in dozens, or by the piece, are expressed in pounds (avoirdupois weight) for grouping and evaluation.

### PROFILE OF THE SCHOOL SYSTEM

Puerto Rico has a population of about 3 million people. In the 1974-75 school year, Puerto Rico's school system included 2,737 elementary and secondary schools.

Of the 2,612 schools in the public sector, 1,978 were classified as elementary, 601 as secondary, and 33 ungraded. Grade levels were not determined for schools in the private sector. No information was obtained on food service operations of 39 private schools that did not participate in either the National School Lunch Program (NSLP) or the USDA School Breakfast Program (SBP). Therefore, this report will concentrate solely on data obtained on 2,612 public and 86 private schools. These schools will be referred to as Puerto Rico's school system.

Classes normally were in session 190 days during the 1974-75 school year that spanned approximately 10 months. For 365 schools, however, classes were in session for a full 12 months. Student enrollment was 746,132, an average of 277 students per school. Daily attendance averaged 628,451 or 84 percent of enrollment.

The number of full-time classroom teachers was reported to be 30,517, slightly more than 11 teachers per school with each teacher instructing an average of 25 students per class.

### SCHOOL FOOD SERVICE PROGRAMS

All schools in the public sector and 86 of the 125 schools in the private sector made food service available on a nonprofit basis. Children who were not enrolled in classes and adults who did not work for the school system normally did not eat school food supplies. All schools had onsite kitchens for preparing food that was served.

#### USDA School Breakfast Program

About 57 percent (1,540) of the schools for which data were obtained participated in the SBP. Regulations for this program require that each breakfast provide a minimum one-half cup serving of fruit, vegetable, or both, or full-strength fruit or vegetable juice, one slice of whole grain or enriched bread or three-fourths cup of cereal (or an ounce, whichever is less) or an equivalent combination, and one-half pint of fluid milk used as a beverage, on cereal, or both. To improve the nutritional well-being of participating children, an ounce or equivalent serving of meat alternate is recommended as often as practicable.

Breakfast was served to an average of 94,641 students each day. Breakfast also was served daily to an average of 2,176 members of the teaching staff and other adults who work for the school system. Student participation ranged from a daily low of 77,157 to a high of 105,314. All breakfasts were given to students at no charge.

The food cost for a USDA school breakfast, including the value of USDA-donated commodities, averaged 20 cents during the 1974-75 school year.

#### National School Lunch Program

Lunch service under the NSLP was available to students in all public schools and in 86 of 125 private schools in Puerto Rico during the 1974-75 school year. Meals served under this program must conform to a meal pattern referred to as the Type A Pattern. To meet requirements under the NSLP during the time of this study, the Type A lunch contained a minimum of 2 ounces of cooked lean meat (edible portion as served) or an equivalent serving of meat alternate, three-fourths cup of two or more vegetables, fruits, or both (full strength vegetable or fruit juice may be counted to meet up to one-fourth cup of this requirement), a slice of whole grain or enriched bread or alternate, one-half pint of fluid milk served as a beverage, and a teaspoon of butter or fortified margarine. As part of the bread requirement in Puerto Rico, the following

products may be served: a starchy vegetable or fruit such as tanniers, plantains, and sweet potatoes, or an enriched whole grain cereal product such as macaroni and noodles. Only the Type A lunch was served; a la carte foods were not available for purchase. Planned daily menus geared to a 20-day cycle were followed. Menus used were flexible, however, and could be adjusted to accommodate changes in availability of federally donated food and to take advantage of and provide for a holiday luncheon or special celebration.

During the school year, the lunches served to students daily ranged from 363,548 to 439,540, and averaged 417,400. Based on average attendance during this period, the rate of student participation ranged between a low of 57.8 percent and a high of 69.9 percent; the average was 66.4 percent.

School lunches also were available to the teaching staff and other adults who worked for the school system. An average of 17,287 nonstudents availed themselves of this service each day. Consequently, about 4 percent of the lunches served from the school food supply were consumed by persons other than students.

All students except those who were members of nonresident families living in Puerto Rico--primarily children of U.S. military families stationed there--received lunches at no charge. An average of 1,150 children of nonresident families participated in the lunch program at a price of 55 cents per meal. Teachers did not pay for lunches; however, this cost was underwritten by the Commonwealth of Puerto Rico.

The cost of food for a Type A lunch, including the value of USDA-donated commodities, averaged 44 cents during the school year.

#### Special Milk Program

Puerto Rico's school system was not authorized by law to participate in the USDA Special Milk Program until 1975. The school system is now authorized to use reconstituted dry milk to meet requirements under the Special Milk Program. Schools also are authorized to serve reconstituted dry milk to meet the fluid milk requirements under the SBP and the NSLP.

#### USDA Food Distribution Program

Each year, millions of dollars worth of food is donated to schools throughout the Nation and in participating territories. These donated foods are made available by the Department of Agriculture under school lunch, price support, and surplus removal legislation. They are distributed to schools by a cooperative food handling system involving Federal, State, and local agencies. During fiscal year 1975, about 764 million pounds of food costing \$418 million were distributed to school lunch programs.

#### Quantity and Value of Federally Donated Food

During the 1974-75 school year, Puerto Rico's school system received 7,518,100 pounds of food of all types under the USDA Food Distribution Program (table 1). This represented about 10 percent of the total quantity of food used, and was valued at over \$4.8 million. Dairy products accounted for more than 46 percent of the total quantity of donated food received; meats, about 24 percent; poultry products, 11 percent; and vegetables, 8 percent.

Dairy products sent to all U.S. school systems were about 21 percent of the federally donated foods, far less than that received by Puerto Rico's school system. As

Table 1--Quantity and value of donated food used in Puerto Rico's schools,  
September 1974-August 1975

Food	Quantity			Value		
	Total	Per student 1/	Percentage of all food	Total	Per student 1/	Percentage of all food
	1,000 pounds	Pounds	Percent	1,000 dollars	Dollars	Percent
Total	7,518.1	12.0	100.0	4,835.1	7.69	100.0
Dairy products:	3,466.5	5.5	46.1	2,429.0	3.87	50.2
Milk, nonfat dry	3,466.5	5.5	46.1	2,429.0	3.87	50.2
Fats and oils:	179.3	.3	2.4	145.4	.23	3.0
Butter	179.3	.3	2.4	145.4	.23	3.0
Meat:	1,784.4	2.8	23.7	1,405.5	2.24	29.1
Beef, ground	1,634.5	2.6	21.7	1,272.9	2.03	26.3
Pork, canned	149.9	.2	2.0	132.6	.21	2.7
Poultry:	797.1	1.3	10.6	506.4	.81	10.5
Chicken, canned	295.5	.5	3.9	205.0	.33	4.2
Chicken parts	251.8	.4	3.4	107.4	.17	2.2
Turkey roll	249.8	.4	3.3	194.0	.31	4.0
Vegetables:	617.2	1.0	8.2	125.3	.20	2.6
Beans, green	404.7	.6	5.4	68.9	.11	1.4
Sweet potatoes, canned	212.5	.3	2.8	56.4	.09	1.2
Fruits:	423.6	.7	5.6	100.8	.16	2.1
Cranberry sauce	226.6	.4	3.0	47.9	.08	1.0
Peaches, canned	197.0	.3	2.6	52.9	.08	1.1
Nuts:	250.0	.4	3.3	122.7	.20	2.5
Peanut butter	183.2	.3	2.4	81.6	.13	1.7
Peanut granules	66.8	.1	.9	41.1	.07	.9

1/ Based on average attendance.

earlier indicated, Puerto Rico was authorized to serve reconstituted dry milk in place of fresh fluid milk, and it met part of its fluid milk requirements under both the SBP and the NSLP with dry milk received under the USDA Food Distribution Program.

If the quantity of donated food received by Puerto Rico were adjusted to reflect average receipts of dairy products, the commodities received under the program by

Puerto Rico would have approximated the same proportionate distribution pattern as that for all U.S. school systems except for peanuts, fruits, and cereals and grains. 1/

A number of products used in relatively large quantities in the schools in Puerto Rico are not federally donated commodities. These foods--tanniers (tania) and garbanzo peas, and papaya and plantain--accounted for 17 and 30 percent, respectively, of the total quantity of vegetables and fruits used.

#### Food Processing Contracts

Schools may use the USDA-donated food products directly as basic ingredients in the preparation of meals, or they may have products processed under contract by commercial food firms into more convenient and usable forms. A food processing contract is a written agreement between a food processor and a school system to use or allocate federally donated food as ingredients in processing a different end-use product. Having peanut butter processed into cookies and flour and shortening into crackers are examples. These contracts help schools to economize on food costs. Those persons served meals also may benefit from a greater variety of food.

Puerto Rico reported using food processing contracts for three USDA-donated commodities: ground beef was combined with textured vegetable protein (TVP), dry beans were processed and canned with salt and water added, and flour was used as an ingredient in crackers.

#### Some Problems with Donated Foods

The USDA Food Distribution Program is substantial and diverse. During fiscal year 1975, USDA made available almost 400,000 tons of food to participating school systems throughout the Nation. The variety of products ranged across nearly all commodity lines.

When determining commodities to be purchased under the USDA Food Distribution Program, specific consideration is given to food in surplus, food available under price support programs, and food purchased specifically for school food service programs. Although guidance for purchasing food for use in schools involves consideration of the food preferences of and product acceptability to children and school systems, schools periodically may receive a less acceptable commodity because of the allocation method used and potential differences in regional, State, and local preferences.

During the study year, the Puerto Rico school system reported that it had experienced dissatisfaction with four products. It reported that bulgur and cranberry sauce had low acceptance in the school system, that it would like to substitute part of its allotment of peanut butter for other commodities, and that it preferred to receive fruits of higher nutritive value. 2/

Infrequently, donated products were rejected because they were unsatisfactory. These were chiefly goods that presumably were in storage and then transferred to the school system from the Needy Family Program, which was being phased out that year. Included were flour, cornmeal, rolled oats, rice, and cheese which were rejected because of infestation and mold.

1/ Agricultural Statistics 1976, U.S. Department of Agriculture, table 767, p. 565.

2/ Puerto Rico no longer receives donated food that it would rather not accept, because of changes in the Program subsequent to the study.

SCHOOL FOOD SUPPLY

The school food supply in Puerto Rico has been growing rapidly as a result of increasing enrollment and number of schools offering food service. Approximately 62 million lunches under the NSLP and 3 million breakfasts under the SBP were served in 1972. By 1975, this had increased to 74 million lunches and 16 million breakfasts.

Quantity and Value of Food Used

During the 1974-75 school year, almost 77 million pounds of food with a wholesale value of \$35.4 million were received by the school system (table 2). This included the cost of purchased food and the estimated value of USDA-donated commodities.

Table 2--Quantity and value of all food used in Puerto Rico's schools, September 1974-August 1975

Food	Quantity			Value		
	Total	Per student <u>1/</u>	Per participating student	Total	Per student <u>1/</u>	Per participating student
	1,000 <u>pounds</u>	-- Pounds --		1,000 <u>dollars</u>	-- Dollars --	
Total	76,691.6	122.0	144.2	35,365.5	56.27	66.51
Dairy products	5,881.2	9.4	11.1	4,532.1	7.21	8.52
Beef	2,816.8	4.5	5.3	2,371.0	3.77	4.46
Other meats	4,387.4	7.0	8.3	4,152.4	6.61	7.81
Poultry and eggs	1,182.4	1.9	2.2	872.5	1.39	1.64
Seafood	2,215.2	3.5	4.2	1,672.3	2.66	3.15
Vegetables	31,148.4	49.6	58.6	8,909.9	14.18	16.76
Fruits	11,574.8	18.4	21.8	5,388.7	8.57	10.13
Juices and nectars	3,712.8	5.9	7.0	613.7	.98	1.15
Fats and oils	2,188.8	3.5	4.1	1,406.7	2.24	2.65
Bakery products	960.4	1.5	1.8	529.7	.84	1.00
Grain and cereal	4,241.9	6.7	8.0	1,462.6	2.33	2.75
Sugar and sweets	2,496.4	4.0	4.7	1,070.9	1.70	2.01
Beverages	1,212.3	1.9	2.3	770.4	1.23	1.45
Prepared foods	858.4	1.4	1.6	938.5	1.49	1.77
Nuts, condiments, seasonings	1,814.4	2.9	3.4	674.1	1.07	1.27

1/ Based on average attendance.

Commercial purveyors furnished 69.2 million pounds of food, more than 90 percent of that received. <sup>3/</sup> This food cost \$30.5 million, about 86 percent of the value of all food received. The difference of 4 percentage points between the quantity and value of food received is due primarily to greater proportionate commercial purchases of vegetables than other commodities and the relatively low cost per pound of vegetables.

Food consumption per student in attendance was valued at \$56.27 for the year, an average of 31.8 cents for each day that food service was available. In terms of quantity, each student averaged 122 pounds per year, or 0.69 pounds daily, during the same period. Unless otherwise indicated, information on per capita consumption by students is based on average attendance figures.

Based only on students who actually participated in the breakfast and lunch programs (excluding the value and poundage of food served to teachers and other adults who ate meals prepared from school food supplies), food valued at \$66.51 and weighing nearly 145 pounds per student was used during the year. Averages per day were 37.6 cents and 0.82 pounds per participating student.

### Importance of Individual Commodities

There was considerable variation among commodities in amounts received and in proportions that they represent of the total quantity and value of purchased and donated food used. This examination of food usage (see table 3) concentrates primarily on relative quantities rather than values because of price fluctuations that have occurred in recent years.

#### Dairy Products

Dry instant milk accounted for 97 percent of the dairy products used, and averaged over 9 pounds of dry instant milk per student for the year. On a reconstituted basis, 14 ounces of dry is equivalent to 1 fluid gallon. Adjusted to exclude estimated usage by adults, consumption of fluid milk by students averaged 1.1 half-pints for each USDA school breakfast and Type A lunch served. Dry instant milk received through the USDA Food Distribution Program amounted to 3,466,500 pounds, or about 61 percent of the dry instant milk used. Only 1,100 pounds of fresh fluid milk were used, and this was purchased from commercial suppliers.

#### Fats and Oils

Use of fats and oils during the school year equaled 3.5 pounds and \$2.24 per student. Solid shortening was the principal product in this category with about 69 percent of the group total. The relatively small amounts of butter received were federally donated, whereas the bulk of fats and oils was obtained from commercial suppliers.

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<sup>3/</sup> Goods not received by the school system from the USDA Food Distribution Program are treated in this report as received from local supply sources and commercial purveyors although this category also includes products transferred from the Needy Family Program, which was being phased out that year.



Table 3--Quantity and value of individual foods used in Puerto Rico's schools,  
September 1974-August 1975

Food	Quantity		Value		Percentage of all food
	Total	Per student 1/	Total	Per student 1/	
	1,000 pounds	Pounds	1,000 dollars	Dollars	Percent
Total	76,691.6	122.0	35,365.5	56.27	100.0
Dairy products (including fresh milk and ice cream):					
Milk, dry	5,881.2	9.4	4,532.1	7.21	12.8
Cheese (including processed)	5,719.1	9.1	4,368.2	6.95	12.4
Natural	160.7	.3	163.4	.26	.5
Natural	159.2	.3	161.1	.26	.5
Fats and oils (including mayonnaise):					
Shortening, solid	2,188.8	3.5	1,406.7	2.24	4.0
Oil, cooking and salad	1,509.5	2.4	905.5	1.44	2.6
Butter	490.6	.8	350.5	.56	1.0
Butter	179.3	.3	145.4	.23	.4
Grains and cereals: <u>2/</u>					
Rice, regular white	4,241.9	6.7	1,462.6	2.33	4.1
Spaghetti/macaroni, dry enriched	2,707.8	4.3	855.1	1.36	2.4
Corn meal	933.9	1.5	294.1	.47	.8
Cereal, dry breakfast <u>3/</u>	181.7	.3	33.1	.05	.1
Regular package size	120.9	.2	164.8	.26	.5
Farina	93.2	.1	114.7	.18	.3
Gingerbread mix	105.4	.2	43.1	.07	.1
Oats, rolled	102.3	.2	40.1	.06	.1
Oats, rolled	75.7	.1	25.4	.04	.1
Bakery products: <u>4/</u>					
Saltines, soda crackers	960.4	1.5	529.7	.84	1.5
Cake	715.8	1.1	455.7	.73	1.3
Bread (including Spanish and miscellaneous)	165.4	.3	32.6	.05	.1
White, buttermilk, potato	72.2	.1	37.8	.06	.1
White, buttermilk, potato	70.3	.1	37.2	.06	.1
Beef (including steaks):					
Ground	2,816.8	4.5	2,371.0	3.77	6.7
Canned	1,723.8	2.7	1,295.2	2.06	3.7
Canned	1,092.8	1.7	1,075.5	1.71	3.0
Other meats:					
Lunch meats	4,387.4	7.0	4,152.4	6.61	11.7
Frankfurters	4,025.7	6.4	3,777.6	6.01	10.7
Frankfurters	2,890.7	4.6	2,863.3	4.56	8.1

See footnotes at end of table.

Continued--

Table 3--Quantity and value of individual foods used in Puerto Rico's schools,  
September 1974-August 1975--Continued

Food	Quantity		Value		Percentage of all food
	Total	Per student 1/	Total	Per student 1/	
	1,000 pounds	Pounds	1,000 dollars	Dollars	Percent
Luncheon meat	1,072.8	1.7	852.8	1.36	2.4
Vienna sausage	62.2	.1	61.5	.10	.2
Pork (including chops, roasts, and hams)	361.7	.6	374.8	.60	1.1
Canned	355.9	.6	368.4	.59	1.0
Poultry and eggs:	1,182.4	1.9	872.5	1.39	2.5
Poultry	798.8	1.3	506.8	.81	1.4
Canned	295.5	.5	205.0	.33	.6
Chicken parts	251.8	.4	107.4	.17	.3
Turkey (including ready- to-cook)	251.5	.4	194.4	.31	.5
Roll	249.8	.4	194.0	.31	.5
Eggs, dry	383.6	.6	365.7	.58	1.0
Whole	332.4	.5	298.4	.47	.8
Mix	51.2	.1	67.3	.11	.2
Seafood:	2,215.2	3.5	1,672.3	2.66	4.7
Cod	1,406.0	2.2	966.4	1.54	2.7
Tuna	615.3	1.0	615.2	.98	1.7
Sardines	193.9	.3	90.7	.14	.3
Tomato sauce	112.4	.2	56.3	.09	.2
Other	81.5	.1	34.4	.05	.1
Sugars and sweets (including sirup and candy):	2,496.4	4.0	1,070.9	1.70	3.0
Sugar, white granulated	1,856.7	3.0	707.6	1.13	2.0
Jam 5/	589.0	.9	347.1	.55	1.0
Pineapple and papaya	344.5	.5	239.9	.38	.7
Mango	183.2	.3	81.8	.13	.2
Guava	57.7	.1	22.7	.04	.1
Marmalade	49.7	.1	15.1	.02	6/
Vegetables (including celery, garlic, and lettuce):	31,148.4	49.6	8,909.9	14.18	25.2
Peas, green	1,139.0	1.8	440.2	.70	1.2
Beans, green-snap	4,027.9	6.4	1,530.8	2.44	4.3
Beans and peas, other	9,240.8	14.7	2,861.8	4.55	8.1
Garbanzo	4,290.5	6.8	1,684.8	2.68	4.8
Red, black, brown	2,078.7	3.3	543.1	.86	1.5

See footnotes at end of table.

Continued--

Table 3--Quantity and value of individual foods used in Puerto Rico's schools,  
September 1974--August 1975--Continued

Food	Quantity		Value		Percentage of all food
	Total	Per student 1/	Total	Per student 1/	
	1,000 pounds	Pounds	1,000 dollars	Dollars	Percent
White	1,479.9	2.4	347.4	.55	1.0
Blackeyed	1,391.7	2.2	286.5	.46	.8
Corn (including corn on cob)	3,639.1	5.8	975.3	1.55	2.8
Off cob	3,618.9	5.8	969.4	1.54	2.7
Carrots	3,034.3	4.8	642.6	1.02	1.8
Potatoes, white	2,702.4	4.3	503.9	.80	1.4
Fresh	2,439.8	3.9	365.6	.58	1.0
Dried	262.6	.4	138.3	.22	.4
Potatoes, sweet, canned	1,422.0	2.3	432.1	.69	1.2
Tomatoes	2,636.5	4.2	802.4	1.28	2.3
Tomato puree	2,250.8	3.6	675.6	1.08	1.9
Tomatoes	385.7	.6	126.8	.20	.4
Pumpkin, canned	1,284.0	2.0	238.6	.38	.7
Tanners	864.7	1.4	193.1	.31	.5
Vegetables, mixed	439.4	.7	110.1	.18	.3
Cabbage	288.1	.5	46.4	.07	.1
Onions	265.8	.4	54.7	.09	.2
Green salad mix	93.3	.1	30.1	.05	.1
Peppers, sweet	64.7	.1	45.7	.07	.1
Fruits (including fruit cocktail):	11,574.8	18.4	5,388.7	8.57	15.2
Bananas	4,399.8	7.0	1,673.0	2.66	4.7
Plantain	3,121.6	5.0	1,109.5	1.77	3.1
Ripe in sirup, canned	755.0	1.2	510.2	.81	1.4
Fresh	523.2	.8	53.3	.08	.2
Pineapple, canned	2,034.4	3.2	1,712.6	2.73	4.8
Peaches, canned	1,984.0	3.2	729.9	1.16	2.1
Plums, canned	1,720.0	2.7	684.6	1.09	1.9
Apricot halves, canned	553.3	.9	306.0	.49	.9
Papaya, canned	314.1	.5	102.7	.16	.3
Prunes, dried	306.6	.5	116.0	.18	.3
Cranberry sauce	226.6	.4	47.9	.08	.1
Juices and nectars (including guava juice):	3,712.8	5.9	613.7	.98	1.7
Guava nectar	1,492.1	2.4	249.7	.40	.7
Orange juice, concentrated	1,285.0	2.0	212.2	.34	.6
Pineapple juice	467.6	.7	75.9	.12	.2
Grapefruit juice	467.5	.7	75.8	.12	.2

See footnotes at end of table.

Continued--

Table 3--Quantity and value of individual foods used in Puerto Rico's schools, September 1974-August 1975--Continued

Food	Quantity		Value		Percentage of all food
	Total	Per student 1/	Total	Per student 1/	
	1,000 pounds	Pounds	1,000 dollars	Dollars	Percent
Beverages (including ground and instant coffee):	1,212.3	1.9	770.4	1.23	2.2
Cocoa mix, dry	1,211.8	1.9	770.1	1.23	2.2
Nuts, condiments, and seasonings: <u>7/</u>	1,814.4	2.9	674.1	1.07	1.9
Ground and powdered seasoning	854.3	1.4	480.7	.76	1.4
Salt	678.6	1.1	550.0	.09	.2
Peanut butter	183.2	.3	81.6	.13	.2
Peanut granules	66.8	.1	41.1	.07	.1
Prepared food: <u>8/</u>	858.4	1.4	938.5	1.49	2.7
Corned beef	696.8	1.1	741.2	1.18	2.1
Pasteles	125.9	.2	188.4	.30	.5

1/ Based on average attendance.

2/ Includes all-purpose flour and pancake mix.

3/ Includes individual servings of dry breakfast cereal.

4/ Includes hot dog, rye, and soft rolls, cupcakes, and yeast-type jelly doughnuts.

5/ Includes miscellaneous jams, jellies, and preserves.

6/ Less than .05 percent.

7/ Includes vinegar, vanilla extract, and cinnamon.

8/ Includes textured vegetable protein (TVP).

### Grains and Cereals

Consumption of grain and cereal products averaged 6.7 pounds per student in 1974-75. Rice accounted for 64 percent of this category. All grain and cereal products were obtained from local sources.

### Bakery Products

All bakery products were purchased from commercial sources; however, a food processing contract was used to convert federally donated flour into crackers. Crackers accounted for 75 percent of this category.

Bread servings amounted to only 0.1 pound per student, indicating little is served with meals. This is about 1 meal in 60 with a serving of bread. Evidently, cereal is being substituted for the bread requirement in the USDA school breakfast, and a starchy

fruit or vegetable or an enriched whole grain cereal product is being substituted for bread in the Type A lunch. Crackers also may be substituted for the bread requirement. Consumption of bakery products averaged 1.5 pounds per student.

### Beef

Ground and canned beef made up nearly all of the beef category. About 58 percent of all beef used was federally donated, and 95 percent of the ground beef was received under the USDA Food Distribution Program. Average use of beef per student in the 1974-75 school year was 4.5 pounds.

### Other Meats

Lunch meat and pork comprised the category "other meats." Consumption of other meats averaged 7 pounds per student. The principal item in this category was frankfurters, with 66 percent of the quantity. All but a small amount of canned pork was supplied through local sources.

### Poultry and Eggs

Average consumption of poultry and eggs was 1.9 pounds per student. Poultry made up about 68 percent of this category. Federally donated foods accounted for all of the canned poultry, chicken parts, and turkey rolls received. The balance of the category was obtained locally.

### Seafood

Cod and tuna were major items in this category, accounting for 64 and 28 percent, respectively, of the 2.2 million pounds of seafood received, all of which was obtained through commercial channels. Use of seafood averaged 3.5 pounds per student during the 1974-75 school year.

### Sugars and Sweets

This category included granulated sugar, jam, and marmalade, and averaged 4 pounds per student. Sugar was the main product with 74 percent of the poundage. Commercial purveyors supplied all food in this group.

### Vegetables

This was the largest category of food moving into the school system. Use per student averaged almost 50 pounds. Canned vegetables represented about 85 percent of the amount used. Vegetables accounted for 40 percent of the food received, but because of the relatively low cost, represented only 25 percent of total value. Use of beans, including green-snap, was substantially greater than that of any other vegetable.

About 10 percent of the green beans and 15 percent of the sweet potatoes were federal donations. The balance of these products and all other vegetables were obtained from local supply sources.

## Fruits

This was the second most important group of products received, amounting to over 18 pounds per student in 1974-75. More than 95 percent of the fruit was obtained locally. Plantain, with 5 pounds per student, was the major item in this category. Plantain is a staple food in Puerto Rico and may be served in schools there as part of the bread requirement of the Type A lunch.

## Juices and Nectars

Use of this category amounted to almost 6 pounds per student, all of which was supplied by local sources. Guava nectar and concentrated orange juice were major items, accounting for 40 and 35 percent, respectively, of this category.

## Beverages

Dry cocoa mix constituted almost the entire category, which amounted to nearly 2 pounds per student. All beverages were obtained through commercial channels.

## Nuts, Condiments, and Seasonings

Use of this category amounted to almost 3 pounds per student. About 14 percent was federally donated in the form of peanut butter and peanut granules. Salt with 37 percent and ground powdered seasonings with 47 percent were major products in this group. All seasonings were purchased through commercial sources.

## Prepared Food

Prepared food played only a minor role in the diets of children in Puerto Rico's schools, and all such food was purchased from commercial sources.

## Availability of Storage Facilities and Food Form

Availability of different types of storage facilities is likely to have a significant influence in determining the forms of food acquired by schools, particularly frozen and fresh food. Availability of storage facilities also would influence purchasing practices and impact on the frequency of purchases and deliveries, on the type and location of suppliers, and on inventory levels and management.

About 24,500 cubic feet of reach-in refrigerator storage space was available in the schools studied. No walk-in refrigerator space was reported. Refrigerator storage consisted of 1,065 single-door refrigerators, about one refrigerator for every 2.5 schools. Freezer storage was even more scarce, consisting of 81 single-door freezers with a total of 1,863 cubic feet of available space. All freezers were of the reach-in type. Only 3 percent of the schools had freezer storage, or about 1 school in 33.

The limited availability of refrigerator and freezer space in the schools is evidenced by the very low usage of frozen or fresh food requiring refrigeration. Only 5 percent of all food received was frozen; over half of this was federally donated. Ten percent of the food was fresh, but many items, such as bakery products, did not require refrigeration. Including canned goods, which made up 65 percent of the total, more than 85 percent of the food did not require any form of refrigeration (table 4).

Table 4--Food forms used in Puerto Rico's schools,  
September 1974-August 1975

Food	Frozen	Dry	Canned	Fresh
	<u>Percent</u>			
Total	4.6	20.7	64.3	10.4
Purchased	2.0	17.9	68.5	11.6
Donated	28.4	46.1	25.5	--
Dairy products	<u>1/</u>	97.2	--	2.8
Beef	61.2	--	38.8	<u>1/</u>
Other meats	.1	--	99.9	<u>1/</u>
Poultry and eggs	42.4	32.4	25.0	.1
Seafood	--	--	100.0	--
Vegetables	--	1.8	85.3	12.9
Fruits	--	2.6	72.6	24.8
Juices and nectars	--	--	100.0	--
Fats and oils	--	--	100.0	--
Bakery products	--	--	--	100.0
Grains and cereals	--	100.0	--	--
Sugar and sweets	--	74.4	25.6	<u>1/</u>
Beverages	--	100.0	--	--
Prepared food	--	4.2	95.8	--
Nuts, condiments, and seasonings	--	84.5	15.5	--

-- = not applicable.

1/ Less than .05 percent.

#### Food Acquisition Practices

The school system in Puerto Rico ordered all purchased food centrally through competitive purchasing contracts. Even in an emergency, bids were required from three to five food purveyors.

The school system appears to have received well over 75 products during the study period. However, over half the value of all food used was accounted for by only 10 products. These were frankfurters, fish, green beans, garbanzo peas, corn, dry milk, bananas, plantain, pineapple, and ground meat.

Wholesalers and brokers were primary suppliers of purchased food utilized by schools in Puerto Rico. Fluid milk, the only item not obtained from middlemen or through federal donations, was bought locally from dairies.

#### Potential Savings in Volume Purchases

A cost/benefit analysis of Puerto Rico's school food procurement system was not a part of this study. However, some of the characteristics of this system suggest that

certain procurement and supply principles and practices warrant examination for their potential to provide cost savings and other efficiencies. 4/

These principles and practices would be applicable to all schools and State and local government agencies involved in mass feeding. For example, the fact that about 10 items accounted for more than half of the value of all food used by the schools suggests opportunities to save on food cost and handling practices from volume purchases.

Most of the food for the school system was purchased by a central authority. Opportunities to realize benefits from purchasing in volume could be realized in some other school systems by consolidation of food purchases. The objective is to obtain the lowest unit price without lowering quality standards. This frequently is accomplished by purchasing in truck or car lots for delivery at a single destination. Purchases may be totally or partially consolidated to build volume not only among schools and school systems but, conceivably, among two or more different agencies of the same jurisdiction. This might be especially applicable to the problem of some high margin items which are purchased frequently but in small quantities. By building volume, a food procurement system could benefit directly from lower unit food costs. Indirectly, a larger volume could encourage the interest of additional suppliers in servicing the account, thus, increasing competition and potential for further cost benefits.

An alternative to accrue savings also is available to food procurement systems that already are highly consolidated, such as Puerto Rico's. By placing greater proportionate effort on those products which account for a substantial part of the value of all food purchases, a procurement system could benefit from a total cost savings as well as potential handling and storage economies. For products that are purchased in above normal quantities, bids could be obtained from a larger number of potential suppliers at, presumably, lower prices than otherwise would be the case.

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4/ "Study of School Food Procurement Practices," vols. I and II, A.T. Kearney, Management Consultants, Feb. 1978, prepared for the Food and Nutrition Service, contains a discussion of alternative food procurement systems.



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